THE STATE OF OKLAHOMA

2004
WATER QUALITY ASSESSMENT
INTEGRATED REPORT

PREPARED PURSUANT TO SECTION 303(d) AND SECTION 305(b)
OF THE CLEAN WATER ACT

Prepared by
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Acronyms and Definitions

Agencies

ODAFF	Oklahoma Department of Agriculture Food and Forestry
OCC	Oklahoma Conservation Commission
Corporation Commission	Oklahoma Corporation Commission
OSDH	Oklahoma State Department of Health
OSE	Office of the Secretary of Environment
DEQ	Oklahoma Department of Environmental Quality
OWRB	Oklahoma Water Resources Board
Wildlife Department	Oklahoma Department of Wildlife Conservation

Terminologies

303(d)	This section of the Clean Water Act requires each state to identify waters that do not or are not expected to meet applicable Water Quality Standards with technology-based controls alone. States are required to establish a priority ranking for the waters, taking into account the pollution severity and designated uses of the waters. Once identification and priority ranking are completed, states are to develop Total Maximum Daily Loads at a level necessary to achieve the applicable state Water Quality Standards.
304(l)	This section of the Clean Water Act requires each state to identify those waters that fail to meet Water Quality Standards due to toxic pollutants and other sources of toxicity. It also requires the preparation of individual control strategies that will reduce point source discharges of toxic pollutants.
305(b)	This section of the Clean Water Act requires each state to report its water quality on a biennial cycle.
314	This section of the Clean Water Act requires each state to establish a Lake Water Quality Assessment Report. This section provides federal funds for the state to submit a classification of lakes according to trophic condition, develop processes and methods to control sources of pollution and to work with other agencies in restoring the quality of those lakes. Section 314 establishes the guidelines for conducting Clean Lake Studies Phase I and II.
319(h)	This section of the Clean Water Act requires each state to develop a State Assessment Report and a Management Program for Nonpoint Source pollution problems. The Assessment Report is to describe the nature, extent, and effects of Nonpoint Source pollution, the causes and sources of such pollution, and programs and methods used for controlling this pollution.

BMPs	Best Management Practices: A technique that is determined to be the most effective, practical means of preventing or reducing pollutants from nonpoint sources in order to achieve water quality goals.
BOD_5	Biochemical Oxygen Demand (5-Day): The oxygen used in meeting the metabolic needs of aerobic microorganisms in water rich in organic matter -- called also biological oxygen demand; the test requires five days of laboratory time and results may vary when toxic substances are present which effect bacteria.
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand (5-Day): That portion of the BOD that is not due to oxidation of nitrogenous compounds.
CTSI	Carlson's Trophic State Index (CTSI = 9.81 ln[chl-α] + 30.6).
CWA	Clean Water Act: Public Law 92-500 enacted in 1972 provides for a comprehensive program of water pollution control; two goals are proclaimed in this Act: (1) to achieve swimmable, fishable waters wherever attainable by July 1, 1983, and (2) by 1985 eliminate the discharge of pollutants into navigable waters.
DDT	Dichlorodiphenyltrichloroethane: A colorless odorless water-insoluble crystalline insecticide C14H9Cl5 that tends to accumulate in ecosystems and has toxic effects on many vertebrates.
DO	Dissolved Oxygen: The amount of oxygen dissolved in water. DO concentrations range from a few parts per million up to about 10 ppm for most Oklahoma streams. A level of DO around 7 ppm is essential to sustain desired species of game fish. If DO drops below 5 ppm the danger of a fish kill is present and malodorous conditions will result. The major factors determining DO levels in water are temperature, atmospheric pressure, plant photosynthesis, rate of aeration and the presence of oxygen demanding substances such as organic wastes. In addition to its affect on aquatic life, DO also prevents the chemical reduction and subsequent movement of iron and manganese from the sediments and thereby reduces the cost of water treatment.
µg/l	Microgram/liter.
NPDES	National Pollutant Discharge Elimination System: A permit program established by Section 402 of the Clean Water Act. This program regulates discharges into the nation's water from point sources, including municipal, industrial, commercial and certain agricultural sources.
NTU	Nephelometric Turbidity Units: The measurement of the extent or degree of cloudiness by means of a nephelometer (an instrument for determining the concentration or particle size of suspensions by means of transmitted or reflected light).
OKWBID	Oklahoma Waterbody Identification number: A unique identifier assigned to each waterbody in Oklahoma. For a complete description of OKWBIDs, please see Appendix A.
PCB(s)	Polychlorinated Biphenyl(s): Any of several compounds that are produced by replacing hydrogen atoms in biphenyl with chlorine, have various industrial applications, and are poisonous environmental pollutants which tend to accumulate in animal tissues.

pH	The negative logarithm of the effective hydrogen ion concentration or hydrogen-ion activity in gram equivalents per liter used in expressing both acidity and alkalinity on a scale whose values run from 0 to 14 with 7 representing neutrality, numbers less than 7 increasing acidity, and numbers greater that 7 increasing alkalinity.
Playa Lakes / Prairie Potholes	Shallow, small, ephemeral to permanent closed basin lake, typically found in high plains and deserts.
TDS	Total Dissolved Solids: The complete amount of solid matter dissolved in water or wastewater.
TMDL	Total Maximum Daily Load: The sum of individual wasteload allocations for point sources, safety, reserves, and loads from nonpoint source and natural backgrounds.
WLA	Wasteload Allocation: The assignment of target loads to point sources so as to achieve Water Quality Standards in the most efficient manner. The wasteload allocation is designed to allocate or allow certain quantities, rates or concentration of pollutants discharged from contributing point sources which empty their effluent into the same river segment. The purpose of the wasteload allocation is to eliminate an undue "wasteload burden" on a given stream segment.
WQS	Water Quality Standards: rules which establish classifications of uses of waters of the state, criteria to maintain and protect such classifications, and other standards or policies pertaining to the quality of such waters. The purpose of the Standards is to promote and protect as many beneficial uses as are attainable and to assure that degradation of existing quality of waters of the State does not occur. These rules can be found at OAC 785:45.

Executive Summary/Overview

Clean Water Act (CWA) Section 303(d) Requirements

The 1972 amendments to the Clean Water Act include Section 303(d). The regulations implementing Section 303(d) require states to develop lists of water bodies that do not meet water quality standards and to submit updated lists to the U. S. Environmental Protection Agency (EPA) every two years. Water quality standards, as defined in the Code of Federal Regulations, include beneficial uses, water quality objectives (narrative and numerical) and anti-degradation requirements. The EPA is required to review impaired water body lists submitted by each state and approve or disapprove all or part of the list.

For water bodies on the 303(d) list, the Clean Water Act requires that a pollutant load reduction plan or TMDL be developed to correct each impairment. TMDLs must document the nature of the water quality impairment, determine the maximum amount of a pollutant which can be discharged and still meet standards, and identify allowable loads from the contributing sources. The elements of a TMDL include a problem statement, description of the desired future condition (numeric target), pollutant source analysis, load allocations, description of how allocations relate to meeting targets, and margin of safety.

CWA Section 305(b) Requirements

The 1972 amendments to the Clean Water Act also include Section 305(b). The regulations implementing Section 305(b) require states to develop an inventory of the water quality of all water bodies in the state and to submit an updated report to the EPA every two years. This process was established as a means for the EPA and the U. S. Congress to determine the status of the nation's waters.

The 305(b) Report also includes: an analysis of the extent to which water bodies comply with the "fishable/swimmable" goal of the CWA; an analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality achieving the "fishable/swimmable" goal have been or will be attained, with recommendations of additional actions necessary to achieve this goal; an estimate of a) the environmental impact, b) the economic and social costs, c) the economic and social benefits, and d) the estimated date of such achievement; and finally, a description of the nature and extent of nonpoint sources of pollutants, and recommendations of programs needed to control them- including an estimate of the costs of implementing such programs.

Integrated List Guidance

The US Environmental Protection Agency (USEPA) issued guidance (TMDL-01-03) for the development of an Integrated Water Quality Monitoring and Assessment Report (Integrated Report) by the States. This guidance recommends that States integrate their Water Quality Inventory Report (Section 305(b) of the CWA) and their Impaired Waterbodies List (Section 303(d) of the CWA). The Integrated Report is intended to provide an effective tool for maintaining high quality waters and improving the quality of waters that do not attain water quality standards. The Integrated Report will also provide water resources managers and citizens with detailed information regarding the following:

- Delineation of water quality assessment units providing geographic display of assessment results
- Progress toward achieving comprehensive assessment of all waters
- Water quality standards attainment status
- Methods used to assess water quality standards attainment status
- Additional monitoring needs and schedules
- Pollutants and watersheds requiring Total Maximum Daily Loads (TMDLs)
- Pollutants and watersheds requiring alternative pollution control measures
- Management strategies (including TMDLs) under development to attain water quality standards

• TMDL development schedules

The Integrated Report will streamline water quality reporting since data sources and assessment methods will be described in detail, providing a sound technical basis for assessment decisions. Assessment results will also be conveyed in a spatial context, allowing a clearer picture of water quality status and issues. Monitoring needs and schedules will be described, facilitating the articulation of monitoring priorities and identifying opportunities for cooperation with other agencies and watershed partners. TMDL needs and schedules will be defined to convey plans for water quality improvements. The public participation aspects will provide opportunities for data submittal and open discussion of water quality assessment methods and results.

The Integrated Report combines the non-regulatory requirements of the Water Quality Inventory Report (305b) with regulation driven List of Impaired Waterbodies (303d) (i.e., only the latter mandates TMDL development). Successful integration into a single report requires a careful meshing of requirements and procedures. In general, Category 5 of the Integrated Report satisfies USEPA reporting requirements under Section 303d (Impaired Waterbodies) and combined with the remaining Categories document assessment under Section 305b (Water Quality Inventory). Therefore, the regulatory requirements (i.e., EPA approval and adoption; public participation, etc.) for 303d impaired waterbodies listing only apply to Category 5 of the Integrated Report.

The methods used to develop the 2004 Integrated Report (and subsequent Reports) are described in the Continuing Planning Process (CPP). One goal of the CPP is to provide an objective and scientifically sound waterbody assessment listing methodology including:

• A description of the data that the State will use to assess attainment of surface water quality standards
• The quality assurance aspects of the data
• A detailed description of the methods used to evaluate water quality standards attainment
• The placement of waterbodies in one of 5 Categories:

Category 1 - Attaining the water quality standard and no use is threatened.

Waterbodies listed in this category are characterized by data and information that meet the requirements of the CPP to support a determination that the water quality standard is attained and no use is threatened. Consideration will be given to scheduling these waterbodies for future monitoring to determine if the water quality standard continues to be attained.

Category 2 - Attaining some of the designated uses; no use is threatened; and insufficient or no data and information is available to determine if the remaining uses are attained or threatened.

Waterbodies listed in this category are characterized by data and information which meet the requirements of the CPP to support a determination that some, but not all, uses are attained and none are threatened. Attainment status of the remaining uses is unknown because there is insufficient or no data or information. Monitoring shall be scheduled for these waterbodies to determine if the uses previously found to be in attainment remain in attainment, and to determine the attainment status of those uses for which data and information was previously insufficient to make a determination.

Category 3 - Insufficient or no data and information to determine if any designated use is attained.

Waterbodies are listed in this category when the data or information to support an attainment determination for any use is not available, consistent with the requirements of the CPP. To assess the attainment status of these waterbodies, supplementary data and information shall be obtained, or monitoring shall be scheduled as needed.

Category 4 - Impaired or threatened for one or more designated uses but does not require the development of a TMDL.

4A - TMDL has been completed.
Waterbodies are listed in this subcategory once all TMDL(s) have been developed and approved by EPA that, when implemented, are expected to result in full attainment of the standard. Where more than one pollutant is associated with the impairment of a waterbody, the waterbody will remain in Category 5 until all TMDLs for each pollutant have been completed and approved by EPA. Monitoring shall be scheduled for these waterbodies to verify that the water quality standard is met when the water quality management actions needed to achieve all TMDLs are implemented.

4B - Other pollution control requirements are reasonably expected to result in the attainment of the water quality standard in the near future.
Consistent with the regulation under 130.7(b)(i),(ii), and (iii), waterbodies are listed in this subcategory when other pollution control requirements required by local, state, or federal authority are stringent enough to implement any water quality standard (WQS) applicable to such waters. These requirements must be specifically applicable to the particular water quality problem. Monitoring shall be scheduled for these waterbodies to verify that the water quality standard is attained as expected.

4C - Impairment is not caused by a pollutant.
Waterbodies are listed in this subcategory if the impairment is not caused by a pollutant. Scheduling of these waterbodies for monitoring to confirm that there continues to be no pollutant-caused impairment and to support water quality management actions necessary to address the cause(s) of the impairment, shall be considered.

Category 5 - The water quality standard is not attained. The waterbody is impaired or threatened for one or more designated uses by a pollutant(s), and requires a TMDL.

This category constitutes the Section 303(d) list of waters impaired or threatened by a pollutant(s) for which one or more TMDL(s) are needed. A waterbody is listed in this category if it is determined, in accordance with the CPP, that a pollutant has caused, is suspected of causing, or is projected to cause an impairment. Where more than one pollutant is associated with the impairment of a single waterbody, the waterbody will remain in Category 5 until TMDLs for all pollutants have been completed and approved by EPA. For waterbodies listed in this category, monitoring schedules shall be provided that describe when data and information will be collected to support TMDL establishment and to determine if the standard is attained. While the waterbody is being monitored for a specific pollutant to develop a TMDL, the watershed shall also be monitored to assess the attainment status of other uses. A schedule for the establishment of TMDLs for all waters in Category 5 shall be submitted. This schedule shall reflect the priority ranking of the listed waters.

The CPP will provide a companion to the 2004 Integrated Report. It is anticipated that this will be a living document and will be modified, as appropriate, to accompany subsequent Integrated Reports.

Oklahoma's comprehensive waterbody category list is available in Appendix B. Category 5 waterbodies can be viewed exclusively in Appendix C.

Synopsis

During the 2003/2004 reporting cycle, there were a total of 4,011 waterbodies delineated into the new Oklahoma Assessment Database (ADB). These waters include approximately 625,991 lake acres, and 34,172 river and stream miles, of which approximately 517 miles form the border with the State of Texas.

The water quality data used in this report was collected by the Oklahoma Conservation Commission (OCC), Department of Environmental Quality (DEQ), Department of Agriculture Food and Forestry (ODAFF), Corporation Commission, Oklahoma Water Resources Board (OWRB), United States Geological Survey, Association of Central Oklahoma Governments, Tulsa Public Works & Development Dept., Eastern Shawnee Tribe of Oklahoma, and citizens of the state.

Data used in this report came from several sources, including the *Toxics Monitoring Survey of Oklahoma Reservoirs* (OSDH, 1995), *Nonpoint Source Pollution Assessment Report (Section 319(h))* (OCC, 1988, 1994), Clean Lakes Programs (Section 314) (OCC & OWRB), *Lake Water Quality Assessment Report* (OCC & OWRB, 1994), *The State of Oklahoma 2002 Water Quality Assessment Integrated Report* (ODEQ, 2002), Data Gaps Monitoring Projects (OCC 2002, 2003), Beneficial Use Monitoring Program, Rotating Basin Monitoring Program, intensive and rapid bio-assessment surveys, fish and wildlife kill reports, spill reports, and citizen complaints.

The State considers data gathered by interested citizens of the state of Oklahoma to be an important part of the water quality assessment process. Two organizations that help by contributing to this process are Blue Thumb and Oklahoma Water Watch. Volunteers collect water quality samples and deliver those samples to water quality professionals for analysis and assessment. For more information on Blue Thumb, contact the Oklahoma Conservation Commission. For more information on Oklahoma Water Watch, contact the Oklahoma Water Resources Board.

Additional monitoring will allow the state agencies to refine and modify the descriptions of the quality of the state's waters. This report reflects water quality determinations made in the past and such determinations will be confirmed or modified, as additional monitoring data becomes available. Where some waterbodies are indicated to be impaired, and suspected cause of impairment is listed, this information is also subject to confirmation or modification based on additional studies and evaluation by state agencies.

Table 1 shows the size and number of lakes in the state of Oklahoma designated as one of the five available categories outlined in the Integrated List Guidance above, while Table 2 does the same for river and stream miles.

TABLE 1. LAKE CATEGORY SUMMARY

Category	Size (Acres)	Number of Waterbodies
1	0	0
2	253,347	77
3	151,692	315
4A	0	0
4B	0	0
4C	0	0
5	220,952	64

TABLE 2. RIVER AND STREAM CATEGORY SUMMARY

Category	Size (Miles)	Number of Waterbodies
1	0	0
2	1,860	126
3	23,471	2,958
4A	146	15
4B	0	0
4C	0	0
5	8,715	457

Table 3 details the attainment status of each designated beneficial use assigned to lake acres in Oklahoma, while Table 4 does the same for river and stream miles. Each beneficial use for a waterbody must have only one attainment status associated with that use: attaining, not attaining, insufficient data, or no information (not assessed). The methodology for assigning the attainment status of a beneficial use of a waterbody is outlined in the Assessment Methodology and Summary Data section of this report.

TABLE 3. LAKE BENEFICIAL USE SUPPORT SUMMARY

Lake Acres					
Use	**Total Size**	**Size Fully Supporting**	**Size Not Supporting**	**Size Not Assessed**	**Size with Insufficient Info**
Aesthetic	625,991	255,870	22,327	254,991	92,803
Agriculture	625,991	79	10	285,891	340,011
Emergency Water Supply	35,401	35,401	0	0	0
Fish Consumption	625,991	0	0	625,997	14
Warm Water Aquatic Community	625,991	0	209,509	118,766	297,716
High Quality Water	3,750	0	0	3,750	0
Hydropower	281,019	281,019	0	0	0
Industrial and Municipal Process and Cooling Water	570,757	79	0	291,704	278,974
Navigation	84,860	84,860	0	0	0
Primary Body Contact Recreation	625,991	14	0	291,699	334,278
Public and Private Water Supply	557,882	65	0	263,748	294,010
Sensitive Water Supply	107,996	0	0	107,996	0

TABLE 4. RIVER AND STREAM BENEFICIAL USE SUPPORT SUMMARY

River Miles					
USE	**Total Size**	**Size Fully Supporting**	**Size Not Supporting**	**Size Not Assessed**	**Size with Insufficient Info**
Aesthetic	34,172	3,624	284	19,988	10,277
Agriculture	34,173	6,014	2,685	20,616	4,857
Emergency Water Supply	1,556	1,382	0	171	4
Fish Consumption	34,179	0	158	30,082	3,939
Cool Water Aquatic Community Subcategory	1,621	196	214	783	429
Habitat Limited Aquatic Community Subcategory	705	12	186	435	72
Trout Fishery	33	0	10	24	0
Warm Water Aquatic Community Subcategory	31,945	595	4,491	18,119	8,740
High Quality Water	908	0	0	908	0

USE	Total Size	Size Fully Supporting	Size Not Supporting	Size Not Assessed	Size with Insufficient Info
Hydropower	503	460	0	33	10
Industrial and Municipal Process and Cooling Water	33,046	4,980	43	24,164	3,859
Navigation	211	198	0	13	0
Outstanding Resource	277	0	0	277	0
Primary Body Contact Recreation	33,221	471	6,546	25,180	1,024
Public and Private Water Supply	16,127	1,900	977	7,810	5,439
Sensitive Water Supply	1,851	0	0	1,851	0
Secondary Body Contact Recreation	1,068	0	130	848	89

Table 5 shows the number of lake acres impaired by specific pollutant and Table 6 shows the same for the number of river and stream miles.

TABLE 5. LAKE ACRES IMPAIRED BY SPECIFIC POLLUTANT

Impairment	Size (Acres)
Turbidity	131,750
Oxygen, Dissolved	65,078
Total Phosphorus	22,327
pH	22,075
Chloride	10
Total Dissolved Solids	10

TABLE 6. RIVER AND STREAM MILES IMPAIRED BY SPECIFIC POLLUTANT

Impairment	Size (Miles)
Enterococcus	5,125
Escherichia coli	3,333
Turbidity	3,129
Total Fecal Coliform	2,699
Total Dissolved Solids	1,701
Oxygen, Dissolved	1,482
Chloride	1,475
Sulfates	1,245
Lead	941
pH	632
Selenium	605
Total Coliform	455
Oil and Grease	181
Copper	108
Cadmium	97
Nitrates	91

Impairment	Size (Miles)
Ammonia (Unionized) - Toxin	86
Zinc	63
Total Phosphorus	51
Chlorpyrifos	42
Fishes Bioassessments (Streams)	39
Diazinon	31
Chromium (total)	10
Arsenic	6
Barium	4
Dieldrin	4
Silver	2

Table 7 shows the number of lake acres impaired by potential sources, and Table 8 shows the number of river and stream miles impaired by potential sources.

TABLE 7. LAKE ACRES IMPAIRED BY POTENTIAL SOURCE

Potential Source	Size (Acres)
Source Unknown	220,917
Agriculture	4,444
Petroleum/natural Gas Activities (Legacy)	35
Silviculture Harvesting	25

TABLE 8. RIVER AND STREAM MILES IMPAIRED BY POTENTIAL SOURCE

Potential Source	Size Miles)
Source Unknown	7,361
Agriculture	3,085
On-site Treatment Systems (Septic Systems and Similar Decencentralized Systems)	2,466
Municipal Point Source Discharges	879
Petroleum/natural Gas Activities (Legacy)	656
Municipal (Urbanized High Density Area)	615
Runoff from Permitted Confined Animal Feeding Operations (CAFOs)	560
Land Application of Wastewater Biosolids (Non-agricultural)	219
Natural Sources	77
Leaking Underground Storage Tanks	37
Habitat Modification - other than Hydromodification	27
Mine Tailings	26
Surface Mining	22
Spills from Trucks or Trains	7
Discharges from Biosolids (SLUDGE) Storage, Application or Disposal	2
Industrial Point Source Discharge	2

Surface Water Quality

Oklahoma's Water Quality Standards (WQS) are set forth under statutory authority of the OWRB authorized under 82 O.S. § 1085.30. Under these statutes, OWRB "is required to set water quality standards which are practical and in the best public interest and to classify the state's waters with respect to their best present and future uses. These WQS are designed to enhance the quality of the waters, to protect their beneficial uses, and to aid in the prevention, control and abatement of water pollution in the State of Oklahoma" (OWRB, 2002). The WQS have established designated beneficial uses and standards for all of Oklahoma's waters.

The overall support and attainment of the "fishable/swimmable" goals of the CWA is based upon "total waters." The EPA requires all states to report their attainment of the goals of the CWA based on total waters. Relying solely upon this portrayal probably overly inflates estimates of the impaired and threatened conditions of the state's waters since monitoring efforts are typically focused on known problem areas. It would be too cost prohibitive to assess all of the waters within the state. Therefore, all assessment work performed in the state is conducted in a manner that will best utilize available funding resources. For lake total water reporting, the acreage includes Natural Resource Conservation Service (NRCS) (formerly the Soil Conservation Service) assisted farm ponds. Oklahoma lists approximately 1,041,884 total lake acres for the state. Of this number, 330,000 acres comprise approximately 220,000 NRCS assisted farm ponds. These farm ponds are not included in EPA's total water database. Although not considered as "significant lakes," the state considers them as important natural resources for the agricultural and rural communities. These farm ponds provide a significant amount of water for livestock, a source of primary recreation for many, used as flood control devices, sediment catchments, and add to the recharge of groundwater aquifers.

Canals, laterals and most all of the wetlands have not been assessed for the goals of the CWA nor have they been assessed for their beneficial uses. Canals and laterals are manmade watercourses and have not been included in the Appendix A of the WQS. By default, these waters would be assigned primary protection under the 2002 WQS (OWRB, 2002). Due to a lack of funding, no assessment projects have been initiated on these types of waterbodies. Wetlands have not been assigned specific WQS and therefore fall under the same scenario as canals and laterals. There have been several projects and ventures initiated to inventory the wetlands within the state, but little assessment work has been completed.

The major factors affecting the overall use support of the rivers and streams of the state were from the following causes: pathogens, toxic inorganics, and mineralization. The major factors affecting the overall use support of the lakes of the state were from the following causes: oxygen depletion, nutrients, and pH.

All unlisted waters, not included in Appendix A of the WQS, are assumed to have the beneficial uses consistent with the CWA's primary protection requirements. All beneficial use determinations are subject to administrative proceedings including the public hearing process.

Currently, the DEQ develops draft National Pollutant Discharge Elimination System (NPDES) permits for the control and abatement of municipal and industrial pollution. The DEQ issues the final NPDES permit for municipalities and industrial dischargers. Permit compliance is monitored by both the discharger and inspectors for the DEQ.

Since the inception of the CWA in 1972 and its amendments, EPA administered the National Pollutant Discharge Elimination System (NPDES) program, which addresses the management of industrial and municipal wastewater discharges. Previously, the functions related to wastewater were found in the OSDH, for municipal wastewater, and the OWRB for industrial wastewater. The scattering of the NPDES jurisdiction between two agencies that were independently pursuing delegation of their portion from the NPDES program did not appear to be conducive for Oklahoma to assume the program from EPA. Consolidation of the two agencies into the DEQ in July 1993 solved this problem and the work began for the agency to develop its required program documents, rules and statute changes in preparation of submitting its formal NPDES application to EPA, Region 6 office in Dallas, Texas.

The DEQ obtained NPDES program assumption from EPA on November 19, 1996. This is indicative of the agency having jurisdiction over the basic permitting, compliance and enforcement elements of the NPDES program, in

addition to having authority over toxicity reduction, sewage sludge and pretreatment programs. In September 1997, program assumption to issue storm water permits was obtained from EPA.

Ground Water Quality

The goals of the Safe Drinking Water Act (SDWA) are that the nation's groundwater be free of harmful levels of contaminates and they set national standards for drinking water. Several state agencies are involved in the protection of Oklahoma's groundwater. These include the DEQ, ODAFF, Corporation Commission, OCC, and the OWRB. The DEQ is designated as the lead agency for the Wellhead Protection Program (WHPP).

There are instances of man induced groundwater pollution in the state. Thus far they appear to be isolated instances and not general contamination of groundwater drinking water supplies. Historical data indicates water is of good quality from most aquifers.

Oklahoma has Groundwater Standards located in OAC 785:45-7. Designated beneficial uses for the groundwaters of the state are determined by Total Dissolved Solids (TDS). Groundwater with a mean concentration of TDS of less than 3,000 milligrams per liter has assigned beneficial uses of Public and Private Water Supply, Agriculture, and Industrial and Municipal Process and Cooling Water. Groundwater with a mean concentration of TDS of greater than or equal to 3,000 milligrams per liter but less than 10,000 milligrams per liter has assigned beneficial uses of Agriculture and Industrial and Municipal Process and Cooling Water. Groundwater is protected to background quality and, once polluted as a result of human activities, is restored to a quality to support its designated beneficial uses. Ensuring that groundwater meets Water Quality Standards is an important reason for developing and continuing a Water Quality monitoring Program.

OKWBID	Name	Size	Unit	Designated Uses	Impairments	Potential Sources
OK121600040060_00	Tar Creek	12	MILES	F131, N139, X1003	215	N/A
OK121600040130_00	Cow Creek	12	MILES	F124, F125, N133, F135, N137, X1003	322, 413, 400	92, 140, 156
OK121600040170_00	Fourmile Creek	7	MILES	I124, F125, N133, F135, N137, X1003	322, 400	92, 140, 156
OK121600040200_00	Russell Creek	11	MILES	F124, N125, N133, X135, N137, X1003	385, 322, 400	140, 92, 156
OK121600050020_00	Spavinaw Lake	1,584	ACRES	N124, I125, N133, I137, I138, X1003, X1005	462, 322	85, 156, 140
OK121600050070_00	Eucha Lake (Upper Spavinaw)	2,860	ACRES	N124, I125, N133, I137, I138, X1003, X1005	462, 322	85, 156, 140
OK121600050160_00	Beaty Creek	13	MILES	I124, F125, F130, N137, I138, X1003, X1005, I135	215, 217	92, 140, 156
OK121600060010_00	Big Cabin Creek	6	MILES	I124, F125, N133, F135, I137, I138, I1003	413	140
OK121600060080_00	Little Cabin Creek	33	MILES	F124, N125, N133, X135, N137, X1003	385, 399, 322, 215, 217	140, 85, 92, 156
OK121600060200_00	Bull Creek	11	MILES	F124, N125, N133, X135, N137, X1003	138, 385, 322, 217, 400	140, 84, 85, 92
OK121600060220_00	Big Cabin Creek	12	MILES	I124, N125, N133, X135, I139, X1003	138, 385, 399, 441	140
OK121600060240_00	Pawpaw Creek	18	MILES	F124, N125, N133, X135, N137, X1003	385, 322, 217, 400	140, 92, 156
OK121600070010_00	Spring River	22	MILES	I124, F125, N130, F135, N137, I138, I1003	267, 413, 423, 215	140
OK121610000050_00	Pryor Creek	4	MILES	F124, N125, N133, X135, N137, I138, X1003	138, 322, 441, 215, 217	140, 84, 85, 92, 156
OK121610000090_00	Pryor Creek	2	MILES	F124, F125, N133, F135, N137, N138, X1003	322, 413, 217, 398	84, 85, 92, 140, 156
OK121700020020_00	Tenkiller Ferry Lake	6,450	ACRES	N124, I125, N133, F134, I135, I137, I138, X1003	462, 322	140

OKWBID	Name	Size	Unit	Designated Uses	Impairments	Potential Sources
OK121700020110_00	Chicken Creek	5	MILES	I124, I125, N133, X135, X137, X1003	230	140
OK121700030010_00	Illinois River	8	MILES	N124, F125, N130, F135, N137, N138, I1003	462, 413, 215, 217, 400	140
OK121700030040_00	Tahlequah Creek (Town Branch)	6	MILES	X124, X125, X130, N137, X138, X1003, X1004	N/A	N/A
OK121700030280_00	Illinois River	15	MILES	N124, F125, X133, F135, X137, X1003	462	140
OK121700030350_00	Illinois River	5	MILES	N137, N138, I1003, X1004, N124, F125, N130, F135	462, 413, 215, 217, 400	140
OK121700040010_00	Caney Creek	2	MILES	F124, F125, F130, F135, N137, F138, I1003	215	N/A
OK121700050010_00	Illinois River, Baron Fork	23	MILES	N124, F125, I130, F135, N137, N138, I1003, X1004	215, 217, 400	N/A
OK121700060010_00	Flint Creek	7	MILES	N124, F125, F130, F135, N137, N138, I1003	462, 215, 217, 400	140
OK121700060080_00	Flint Creek	5	MILES	I124, F125, F130, F135, N137, N138, I1003, X1004	215, 302	140
OK121700060090_00	Sager Creek	1	MILES	I124, F125, I130, F135, N137, N138, X1003	302	140
OK220100010010_00	Poteau River	21	MILES	I124, F125, N133, F135, F137, I138, I1003	163, 267, 413	140
OK220100010010_30	Poteau River	2	MILES	X124, X125, N133, X135, X137, X138, X1003	127, 163, 267, 372, 375	140
OK220100010010_40	Poteau River	21	MILES	I124, F125, N133, F135, F137, I138, I1003	163, 267, 413	140
OK220100010050_00	New Spiro Lake	254	ACRES	F124, I125, N133, I135, I137, I138, X1003	322	140
OK220100020020_00	Wister Lake	7,333	ACRES	N124, X125, X133, X135, X137, X138, X1003	462	140
OK220100020040_00	Poteau River, Black Fork	30	MILES	I124, F125, N130, F135, I137, I138, X1003, X1006	441	140